Pintail Owners' Manual

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CHARACTERISTICS

A boat that rigs easily, launches with a minimum of effort and is easy to sail, depicts the excellent qualities inherent in all Pintails. These criteria have produced a family daysailer capable of carrying over a thousand pound load.

The hull form necessary to accomplish this task is very full, with a generous amount of freeboard. These characteristics of the Pintail's hull make her an exceptionally stable, dry boat not dependent upon a bailing system for the dryness of the interior.

Pintail has an integrally (not added on) molded motor well in her after port deck. A small motor placed in the well may be handy if you run out of wind or if your dock is in a hard-to-sail area. Otherwise, Pintail is fully able and maneuverable to sail into and out of most any dockage. Her simple rigging procedure may be mastered easily by only one person. She sails with little effort from the commands of only one, allowing for the enjoyment of just sailing and not effort in "making the boat go".

Being designed as a daysailer, Pintail is not as sensitive and tender as a racing dingy. Therefore, the boat is very forgiving and able to take the demands of improper weight placement, sail trim and helming with little effect on actual boat speed or stability. However, if the following comments are observed and practiced, Pintail will always be sailing at her maximum potential.

SAIL TRIM

The best indicator of the proper attitude of the sail in relation to the wind is a ribbon punched through the sail with a darning needle, about three feet aft of the mast at a convenient height to view--half the ribbon on each side of the sail. The power in a sail, as developed by the wind, consists of positive pressure on the windward side and a low of less than atmospheric pressure on the lee side--both caused by flow of wind on the sail. The ribbon as blown by the flow of wind is an indication of the nature of the flow on the sail. Ideally, both the windward and leeside should be streaming straight aft. If the ribbon on the leeside is blowing upward or even forward, the sail is at a stall and wind flow is turbulent--the sail must either be let out (eased) with the mainsheet or the boat pointed higher. The weather side ribbon is not as positive in its indication as the lee side. However, if the weather side isblowing mostly up or even forward the sail needs to be pulled in (trimmed) or the boat sailed at more of an angle to the wind. (Sail more away from the wind direction) Since the wind is constantly changing direction, there is a constant requirement to alter the direction of the boat to gain smooth flow of the wind as indicated by the ribbon through the sail.

BOAT BALANCE

As there is a point on any shaped mass where one could consider all the force to be located - the center of gravity - so is there a point on a sail(s) where all the forces of the wind may be considered to be concentrated - the center of effort (CE). In order for a boat to handle properly, forces applied to the boat should be nearly balanced. So, to balance the force produced at the center of effort, one considers a point on the hull called the center of lateral resistance (CLR); the point at which all sideways pressure may be considered to be located. When the center of effort is directly over the center of lateral resistance, the boat is in perfect balance (no weather helm or lee helm). However, if the rudder is perfectly balanced, it is then not providing any sideways force (lift). To allow the rudder to help provide lift, thus decreasing the leeway angle, the center of effort should be slightly behind the center of lateral resistance to provide for a slight (3-5 degrees) rudder displacement to weather. This now allows the rudder to contribute to lift (movement to weather) which will help oppose the forces in the sail that are trying to drive the boat to leeward. If the center of effort is too far aft of the CLR, one will experience weather helm (the tendency of the boat to round up to weather), slowing the boat down and perhaps stalling the rudder blade, making one potentially unable to steer the boat. The forces may be rebalanced by pivoting the centerboard up several inches. This moves the CLR aft; once again positioning the CE over the CLR.

WEIGHT DISTRIBUTION

On the Wind

A rule of thumb on the placement of skipper and crew, should be crew and skipper close together and near the middle of the boat. This gives the boat a level attitude (fore & aft); the stern just out of the water, keeping the force of drag to a minimum. Keeping your weight near the center of buoyancy (about the middle of the boat) helps to reduce the tendency for the boat to move up and down (pitch). If your weight is separated, the tendency for the boat to pitch is amplified by your weight now being added to the ends of the boat. When the boat pitches, the bow and stern of the boat is alternately raised and lowered, at times forcing the bow down in the water and at times dragging the stern through the water. This is how pitching reduces boat speed. If your weight is kept close together, pitching may be kept to a minimum and boat speed to a maximum. The boat should be kept flat at all times except during drifting conditions when some heel will reduce wetted surface, thereby aiding boat speed.

Reaching

Reaching in light or medium winds requires the same weight placement as on the wind. Weight should be kept fairly close together and the boat should be balanced to keep it level (No heel). As the wind increases, movement of weight aft will counterbalance the effect of the driving force depressing the bow into the water. When this force has been properly counterbalanced, the boat once more assumes a level (fore and aft) attitude.

Running

When running, the skipper and crew should be positioned across from each other and on opposite sides of the boat, forward enough to keep the transom out of the water. Sitting across from one another helps minimize the rolling produced from the wind vortices off the sail and wave motion.

JIB LEADS

To find the correct placement for the jib lead in average wind conditions, poke two pieces of yarn through the jib much the same as discussed in the section on the sail. Both pieces of yarn should be about a foot back from the luff of the jib, one yarn several feet up from the deck or foot of the jib, the other four or five feet do from the head of the jib. With the yarn in their positions, go out sailing and keep on course. Notice the trim of the jib as indicated by the yarn telltales. If the top leeward telltale is dancing and bottom leeward one is flowing back (indicating that the sail is property trimmed) the flow near the top of the jib is stalled while the flow near the bottom of the jib is correct. To get the top of the jib at a proper angle of attack, move the jib lead further forward. This will put more tension on the leech of the jib, hence, the top of the jib will be trimmed in slightly at the top and the bottom of the jib will be eased.

Adjust the jib lead to get the setting that will allow both yarn telltales to "read" approximately the same. Keep in mind that if the jib lead is far forward, the leech of the jib is tensioned, hence the bottom of the jib is eased and the top of the jib is trimmed in; if the jib lead is moved aft, the foot of the jib is tensioned and hence, the bottom of the jib is trimmed and the head of the jib is eased.

Once the setting on one side has been determined, just duplicate that setting on the opposite side.

SAILING TO WEATHER

The Pintail is sailed to weather the same as any other boat--constantly heading up to the wind when lifted (the wind switching to a point further aft than it was previously originating) and falling off away from the wind when headed (the wind switching to a point further forward than it was previously originating. The wind moves towards the head (bow) of the boat).

For light wind conditions, the boom should be trimmed approximately to the corner of the transom. The jib in light going should not be in tight, as with the main, and the boat should be allowed to drive a few degrees off of going hard to weather. If drifting conditions are prevalent, 10-15 degrees of heel will help the sail maintain a somewhat "full" shape.

In medium to heavy conditions, the boom should be trimmed to the area between the transom corner and centerline. The jib should be continually trimmed tighter (or more flat) as the wind increases. In survival conditions, the jib should be in as tightly as possible with the main let out enough to keep the boat under control. In heavy conditions, downhaul pressure on the main should be increased to keep the draft forward in the sail and in turn, the boat in balance.

(On the Pintail, downhaul pressure on the luff of the mainsail is exerted by pulling out the snap stop on the sliding gooseneck. Push or pull down the boom hard enough to cause the horizontal wrinkles along the luff to disappear. When this has been accomplished, release the stop and let it lock in one of the holes on the

gooseneck track. Wind conditions and the normal stretch of the sail will necessitate varying degrees of downhaul tension.) Heeling due to the heavy air causes unequal forces on the boat's underwater surfaces, contributing to the boat rounding up to weather (weather helm). Heeling also displaces the CE to leeward of the CLR which will also produce weather helm. The combination of these two forces tend to produce more weather helm than desirable.

To remedy this, merely raise the centerboard until the excessive weather helm has disappeared. Hiking to keep the boat level will equalize forces on the boat's underwater surfaces and once more the boat will have symmetrical underwater areas. The combination of hiking and moving the centerboard back will once again place forces acting upon the boat in balance.

REACHING

On reaches, the sails should be trimmed according to the wind direction as discussed in the section on the sail. One will notice, however, that as boat speed begins to increase, the sails must be hauled in closer and closer. This is due to a shift in the apparent wind. (i.e. If one slowly drives a car down a road perpendicular to the wind, the wind may be observed to be blowing directly through one window and out the other on the opposite side of the car. As one speeds the car up to a much faster rate, the wind is now observed to be blowing straight at the car, with no wind being felt coming through the car. The resolution of the two forces of wind; the wind perpendicular to the car and the wind from straight ahead due to the car's motion, produces a wind direction of a few degrees from coming straight ahead). The same thing happens to a lesser extent when the boat begins to accelerate. The increase in boat speed causes the apparent wind to shift further ahead. In order to keep the sails properly trimmed, it is then necessary to haul them in until once more in trim (the ribbons flowing back smoothly). Conversely, if the wind lightens and the boat speed decreases, expect the apparent wind to move aft; thus requiring the easing of the sails to keep them properly trimmed. When racing on the reaching leg it is desirable in puffs to fall below the layline to the buoy. This gives one the option, when the wind lightens and moves aft, to head-up and thereby maintain boatspeed.

In addition, the centerboard may be partially pulled up to reduce drag and in turn, aid boat speed. This may be done by less force being required to counteract the sideways force produced from the sail. Since the sail is let out, the force from the sail is more towards the boat's heading with less force pulling the boat sideways. A reduced amount of centerboard area will counteract the smaller sideways force and still keep the boat from having an excessive amount of sideways motion (large leeway angle).

RUNNING

When running downwind, vortices of air flowing off the sail produce a rolling, side-to-side motion. This may be alleviated by crew placement, as earlier discussed, or by holding the jib out on the side opposite the main. By doing this, the rolling force produced by the jib somewhat cancels the force produced by the main. Going "wing and wing" as it is called, reduces rolling and hence, provides better boat speed, since the boat is now sailing on her designed waterlines.

If so desired, the centerboard may be completely pulled up. This will reduce drag and allow the boat to go faster. Since the force produced from the sail is now parallel to the boat's motion, (the sail being all the way out) no force is required to keep the boat from moving sideways. Hence, there is no need for a centerboard when running dead downwind. (EXCEPT in heavy winds when the rolling motion reaches the point that weight or sail placement alone will not sufficiently counteract the forces produced. Some centerboards in these conditions will dampen the side-to-side rolling.)

When tacking, the tiller should be eased over to bring her about, not rammed over which will stall the rudder and slow down the boat. When the boat is head-to-wind, one's weight should be centered in the middle of the boat. As the boat continues it's tack, weight should be moved to the new weather side. Failure to move one's weight to the new weather side may result in an unexpected capsize. Tacks should be UNRUSHED, SMOOTH, and COORDINATED.

Jibes follow the same concept. In all winds up to heavy, the boom may be guided across the boat by merely grabbing the mainsheet tackle in one hand, allowing the boom to smoothly cross over the boat. In heavy winds, it may be necessary to pull in the mainsheet until the wind wants to fling the sail to the other side. As soon as the wind pressure is felt on the mainsheet, let the sheet run out through your hand. This procedure allows for the boom to come to a controlled stop and eases the total force on the sail through controlled drag of the mainsheet. If one chose not to pull in the mainsheet and then let it out, but instead just let the sail slam over, a capsize could result with the instant stop of the sail on the opposite side transferring all the force instantly to the boat instead of easing the force over a greater distance as when you let the mainsheet run out and transfer your weight to counteract that force.

Another safe method to use in these conditions is to sail by the lee, then keep sailing more and more by lee until the wind catches the back of the mainsail and forces it to the other side of the boat. Now the main will just lie, streaming in the wind; the force being dissipated by the wind blowing across each side of the sail, making it luff.

OPERATION OF THE TILLER EXTENSION

The tiller extension is put on PINTAIL to allow the skipper adequate mobility and weight transfer over a range of area that otherwise would have been impossible. To smoothly operate the boat with the tiller extension, several ideas may make it's handling considerably easier. When on a tack, (the skipper should always sit on the weather side) hold the extension on the side of your body that faces aft. On a starboard tack, the extension is held on your left side; on a port tack, it's held on your right side. Grip the extension the same as you would grip another person's hand; just like you are shaking hands with the extension. The combination of these two ideas, allows one to have a maximum amount of comfort and maneuverability. When jibing or tacking, try to keep the tiller extension aft of yourself. This keeps it out of the way for your transfer to the other side. During the tack or jibe, it may be easiest as you are going across the center of the boat to point the extension aft and then retrieve it from the other side, completing an arc from one side to the aft, then to the other side.

Just go out, remember a few of these ideas and practice maneuvers until the tiller extension feels as or more comfortable than the tiller itself.

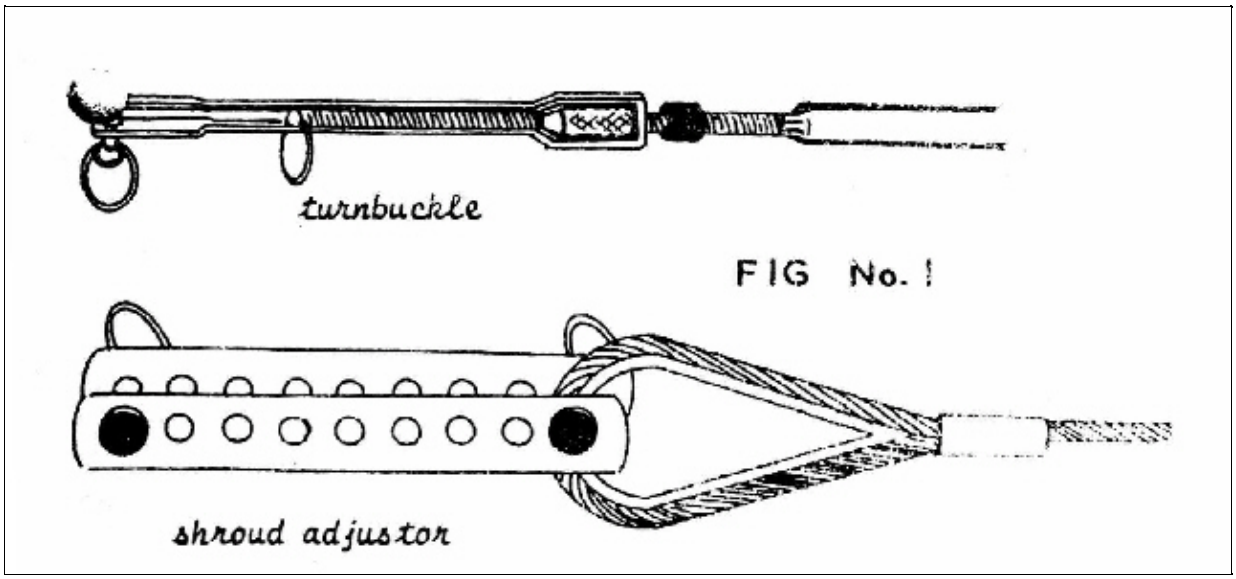


FIG No. 1

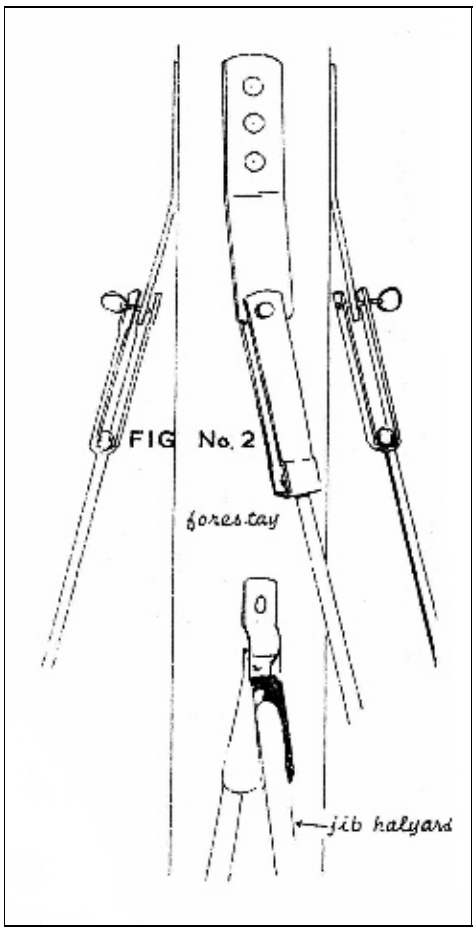


FIG No. 2

CAPSIZING

Once capsized, care should be taken that no one hangs on the boat or rigging. Weight on the boat or rigging could cause the boat to turn turtle (a completely upside down capsize with the spar and sails pointing straight down at the bottom of the lake.) To right the boat from this type of capsize, hold on to the top of the centerboard with your hands and place your toes on the rub rail. Pull back with your hands and bounce on the

rub rail. As the sail appears and comes to the surface, hop up on the centerboard and right the boat as from a normal capsize (one in which the sails are lying on the surface of the water and the boat is on it's side).

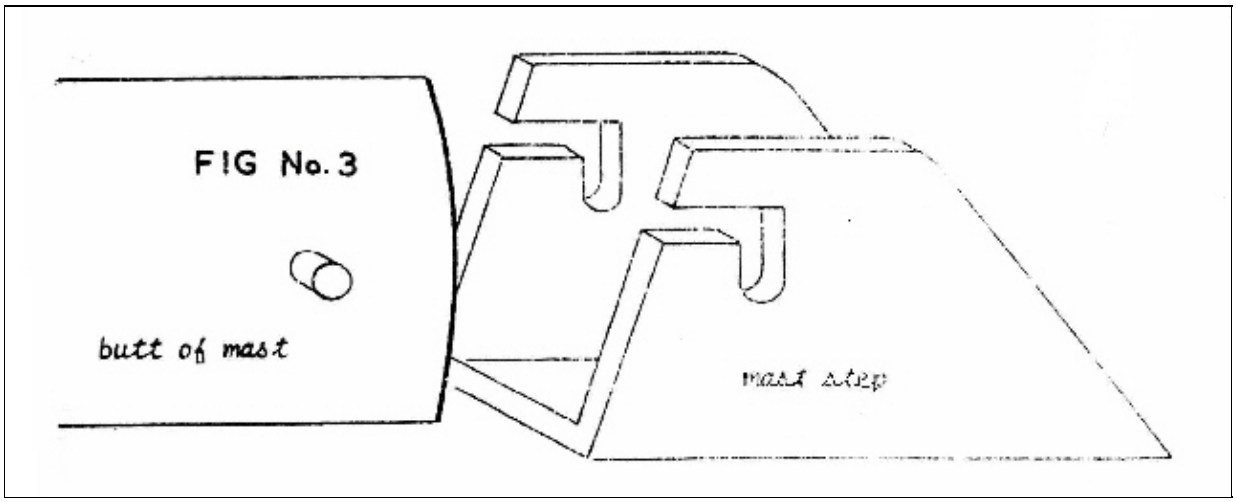
To successfully accomplish a righting after a normal capsize, one needs to lower the sails and get out on the centerboard. If your weight is insufficient to bring the boat back to an upright position, move further towards the end of the centerboard and lightly bounce on it's end. As the boat begins to come upright, hop into the water and remain there until the boat is completely upright. Have one person, either yourself or your crew hop into the center of the boat. Care should be taken that one goes into the boat from the stern, or from the side, having another person on the opposite side and directly across from him, keeping weight on his side of the boat to counterbalance yours as you climb into the boat. These procedures of climbing into the boat will prevent the boat from recapsizing; if you didn't counterbalance your weight. The person in the boat should begin bailing immediately with a bucket. The rest of your company may return to the boat, one at a time, as the water that is removed, allows the boat to support another person. Once all the water has been removed, sort out the lines and sails, then rehoist sails and continue sailing.

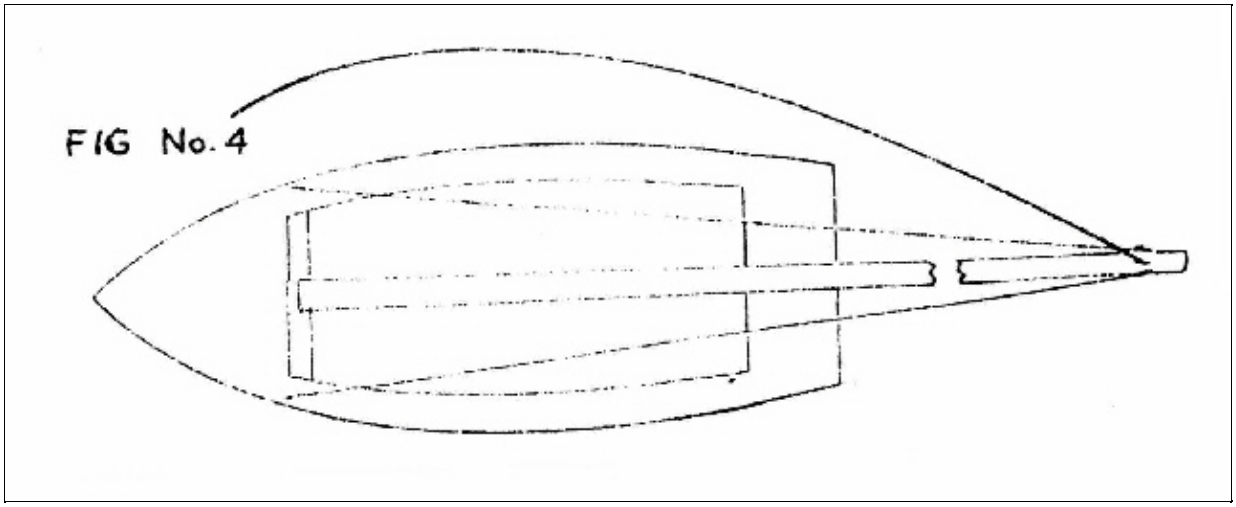
FLOTATION AND WATERTIGHTNESS

The foamed reserve buoyancy in the Pintail is sufficient to float the boat and its maximum recommended capacity when the hull is completely filled with water, providing the people are in the water, hanging onto the boat. This amount of reserve buoyancy exceeds all federal standards by 50%.

If you notice some water has leaked into your boat, a possible source of water could be the rudder fittings on the transom, or a loose fitting drain plug. (The drain plug can be expanded by turning the, screw on the plug.

Periodic checks should be made to maintain the watertight integrity of the hull and the tightness of the bolts on the rudder fittings, to insure maximum buoyancy.





SAFETY

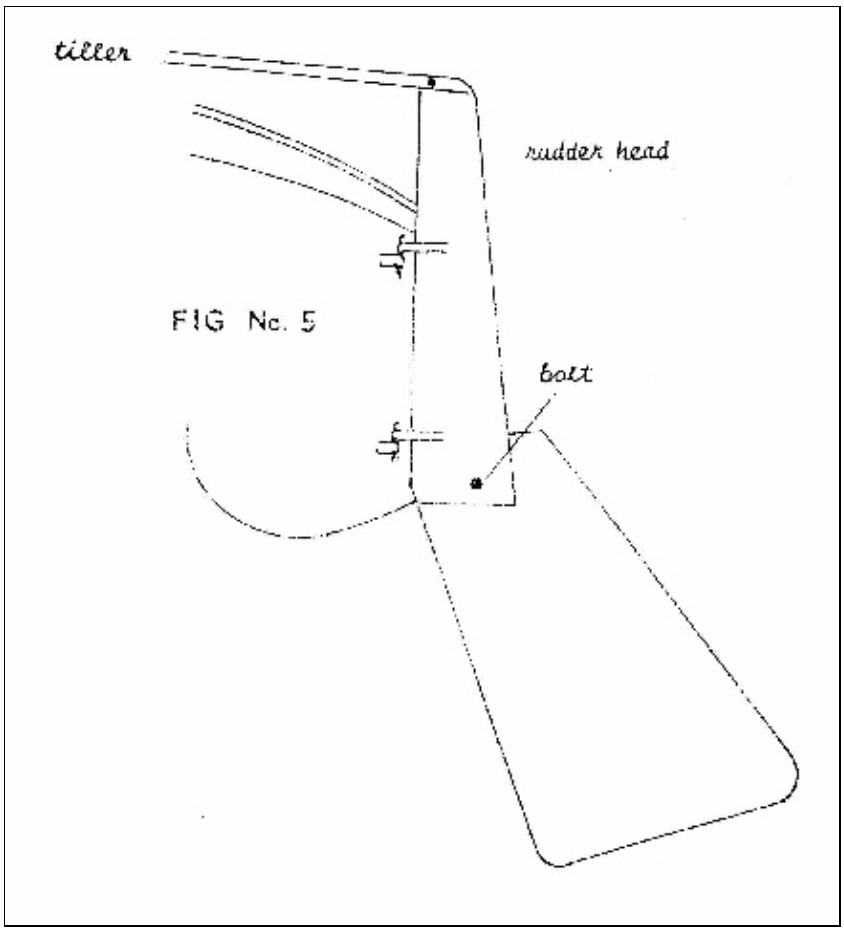
When rigging the boat and raising the mast, look around and up high to make certain there are no power lines overhead or anywhere nearby that you might accidentally hit while launching the boat. Some power lines have not been adequately maintained and insulation may be nonexistent. If a mast bumps into such a wire, or if a shroud wears through the insulation on a wire, electrocution may result to anyone touching the boat, trailer, or car attached to the trailer.

If sailing in a climate where cold winters are prevalent; early spring and late fall sailing deserve special consideration. During these periods of the year, the water temperature is cold. Falling overboard in very cold water can result it death after three to five minutes of exposure. If you are planning to sail in these conditions, wear warm clothing (preferably a wetsuit) and lifejacket.

In heavy air, lifejackets should be worn at all times because these winds place the greatest strain on boat and person, at times resulting in capsizes, man-overboards or breakdowns. If one is involved in any of these occurrences, the extra support a lifejacket provides while in the water will make the situation at hand much more manageable. If sailing in times of storm activity, and there seems to be a forthcoming electrical storm (as heard of the thunder from the lightning), head immediately to shore. A sail boat spar on an open body of water is by far the highest object. Lightning is attracted to such high objects. An electrical discharge to the top of your spar could easily revert yourself and your boat to the basic elements of which they were once composed.

RIGGING THE MAST

1. Place the two side shrouds and the forestay on the mast tangs by using clevis pins. The fore stay is distinguished by an adjustable turnbuckle and the side shrouds by shroud adjusters (Fig. 1).
2. Thread the jib halyard (1/4" x 33' line) through the jib halyard block, then thread the main halyard (1/4" x 45') through the masthead fitting (Fig. 2).
3. Lay the mast in the boat with the top aft and the bottom against the mast step (Fig. 3).
4. Fasten the two side shrouds to the deck chain plates by using the shroud adjuster. Raise the mast and fasten the forestay once the mast is raised (Fig. 4).



RUDDER ASSEMBLY

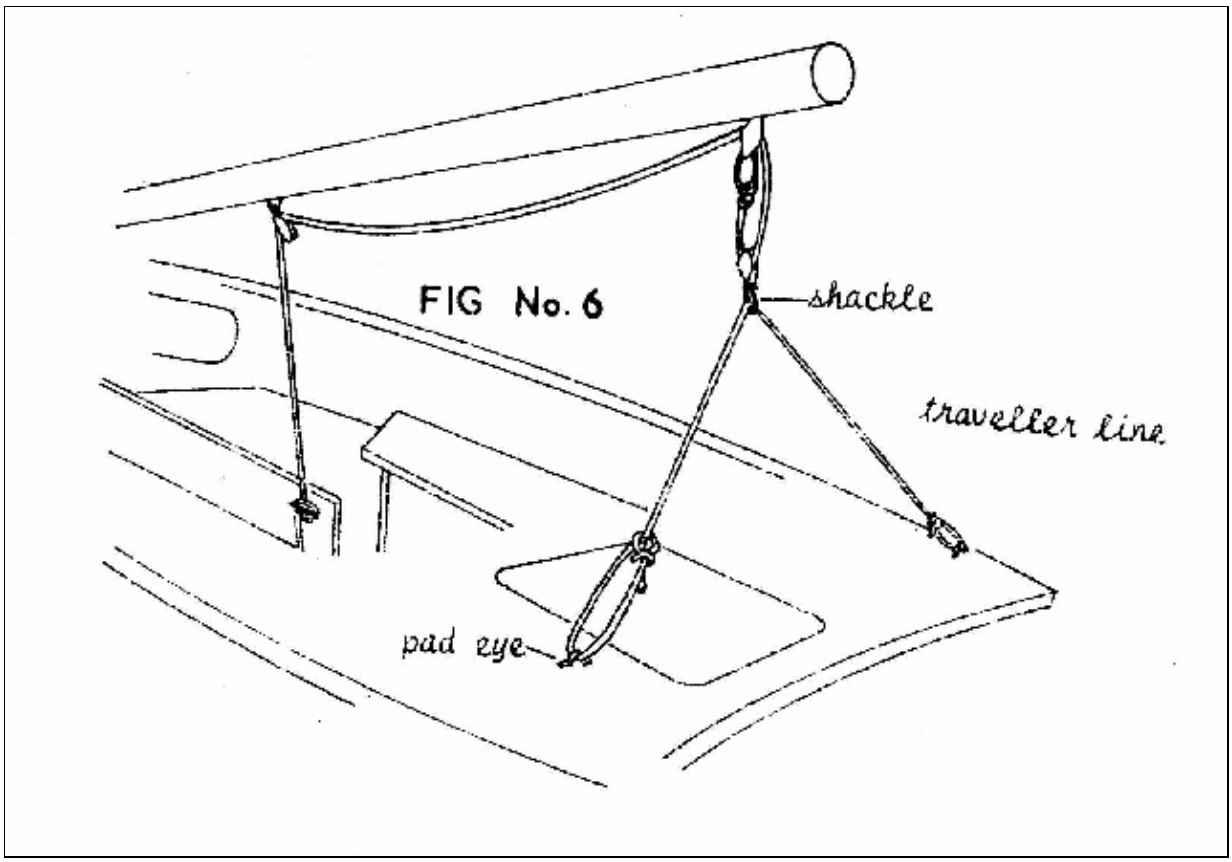
1. Insert the tiller into the rudder head and secure.
2. Place the rudder blade into the rudder head. Align the holes and secure with a bolt.
3. Hang the rudder on the stern of the boat and lock it into place by flipping the retaining latch. The latch will keep the rudder from popping up if the blade strikes bottom (Fig. 5).

BATTENS

As the battens are being inserted into their pockets, one should make certain that the batten end is placed against the elastic material in the batten pocket. Failure to do this will result in insufficient tension in the leech and hence, a poorly setting and inefficient sail.

RAISING THE MAIN SAIL

1. Place the fiberglass battens in the batten pockets that match their size.
2. Slide the boom gooseneck onto the track on the mast.
3. Slide the foot of the sail through the slot on the boom and secure the tack with a bolt. Tie the small line to the clew grommet and thread through the boom end casting, securing to the cleat on the side of the boom.
4. Shackle the head of the sail to the halyard and hoist the sail until it reaches the top of the track. Cleat the halyard on the starboard side of the mast.



MAINSHEET RIGGING

See Figure 6.

RAISING THE JIB

1. Attach the tack to the stemhead fitting with a shackle. Secure the jib halyard to the head of the jib. Hoist up the jib and secure the halyard to the cleat on the port side of the mast.
2. Pull the jib sheet (5/16" x 26' line) halfway through the jib clew grommet and tie (Fig. 7). The jib sheets go inside of the shrouds, then back through the jib cleats.